

WHAT IS CLAIMED IS:

1. A polyhydroxy hydrogensulfated trimetallic nitride endohedral metallofullerene comprising a plurality of hydroxyl groups and a plurality of hydrogensulfate groups covalently bonded to a fullerene encapsulating a trimetallic nitride.
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2. The polyhydroxy hydrogensulfated endohedral metallofullerene of claim 1, wherein the trimetallic nitride comprises a rare earth element and/or a group IIIB element.
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3. The polyhydroxy hydrogensulfated endohedral metallofullerene of claim 1, wherein the trimetallic nitride comprises metals chosen from among the group consisting of Scandium, Yttrium, Lanthanum, Gadolinium, Holmium, Erbium, Thulium, and Ytterbium.
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4. An endohedral metallofullerene of the formula:
$$A_{3-n}X_nN@C_m(-OH)_i(-OSO_3H)_j$$
; where A and X are metal atoms, n=0-3; m is an even number between about 60 and about 200; 1 < i < m-j; 1 < j < m-i.
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5. The endohedral metallofullerene of claim 4, wherein, A and/or X are a rare earth element and/or a group IIIB element.
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6. The endohedral metallofullerene of claim 4, wherein A and/or X are chosen from among the group consisting of Scandium, Yttrium, Lanthanum, Gadolinium, Holmium, Erbium, Thulium, and Ytterbium.
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7. A method of hydroxylation and hydrogensulfation of trimetallic nitride endohedral metallofullerene comprising,
reacting a trimetallic nitride endohedral metallofullerene with NaOH and
TBAH in toluene;

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contacting the reacted reacting a trimetallic nitride endohedral metallofullerene with water and hydrogen peroxide to produce a hydroxylated trimetallic nitride endohedral metallofullerene; and,

reacting the hydroxylated trimetallic nitride endohedral metallofullerene with
5 fuming sulfuric to hydrogensulfate the hydroxylated trimetallic nitride endohedral metallofullerene.

8. A polyhydroxylated hydrogensulfated trimetallic nitride endohedral metallofullerene made by the method of claim 7.